



TuffFlow AE 1

High Performance Air Entraining and Plasticizing Admixture

Uses

- To produce air entrained concrete for increased durability and resistance to damage by frost and de-icing salts. Typical applications include concrete roads and bridge decks, airport runways and taxiways and other concrete exposed to potential frost damage.
- Particularly suitable for use in situations where standard air entrainers are less reliable or less effective.
- To improve cohesion and workability of concrete mixes where poorly graded aggregates must be used and bleeding, segregation or sand runs occur.

Typical Applications & Advantages

- Excellent air bubble stability allows use with a wide range of aggregate qualities and mix conditions.
- Controlled air entrainment improves workability and helps to produce a dense, uniform, close textured surface free from gravel nests and sand runs, further enhancing durability.
- Air entrainment increases the resistance of concrete to attack by frost and de-icing salts, reducing problems of surface scaling and concrete failure.
- Entrained air bubbles assist in the formation of a stable cohesive mix, reducing segregation and bleeding.
- Particularly designed for less variability in performance at varying concrete temperatures than normal air entraining admixtures.

Product Description

TuffFlow AE 1 air entraining admixture is chloride free and based on a synergistic blend of synthetic and naturally occurring surfactants. It is supplied as a brown solution which instantly disperses in water. **TuffFlow AE 1** acts at the interface between the mixing water and cement/aggregate particles to produce microscopic air bubbles which are evenly distributed throughout the concrete.

Typical Properties

Appearance	: Clear amber solution.
Specific Gravity	: 1.01 @±25 ⁰ C

Technical Support

GIC provides a comprehensive technical support service to specifiers, end users and contractors and is able to offer on-site technical assistance.

Instructions for Use

Compatibility

TuffFlow AE 1 is compatible with all types of Portland cements and for use with special cements contact GIC. Never add **TuffFlow AE 1** to dry cement or dry aggregates.

Dosage Rate

The optimum dosage of **TuffFlow AE 1** to meet specific requirements should always be determined by trials using the materials and conditions that will be experienced in use. Typically an increase in air content of 2% may be achieved by adding **TuffFlow AE 1** at 0.25% by weight of cementitious materials. Dosages outside the normal range quoted above can be used to meet particular mix requirements. Contact GIC advice in these cases.

Effects of Over Dosage

A severe over dosage of **TuffFlow AE 1** will result in the following:

- Increase in workability and delayed setting time.
- Reduction in early and final strength.
- Significant increase in air entrainment.

Provided it is properly cured and in some cases due to air entrainment ultimate strengths may be lower. The retarding effects of very high dosage will be exaggerated with SR cement.

Packaging & Storage

TuffFlow AE 1 is available in 20 litre and 210 litre drums. For site installations deliveries will be made in bulk to site storage tanks. **TuffFlow AE 1** has a minimum shelf life of 12 months provided it is stored under cover, out of direct sunlight.





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Health & Safety Precautions

TuffFlow AE 1 does not fall into the hazard classifications of current regulations. However, it should not be swallowed or allowed to come into contact with skin and eyes. Suitable protective gloves and goggles should be worn. Splashes on the skin should be removed with water. In case of contact with eyes rinse immediately with plenty of water and seek medical advice. If swallowed seek medical attention immediately – do not induce vomiting.

For further information refer to the Material Safety Data Sheet available for this product.

Important note

GIC endeavors to ensure that the technical information contained herein is true, accurate and represents our best knowledge and experience. No warranty is given or implied, as GIC has no control over the conditions of use and the competence of any labor involved in the application are beyond our control.

As all GIC technical data sheets are updated on a regular basis it is the customer's responsibility to check that the product is suitable for the intended application, and that the actual conditions of use are in accordance with those recommended.

Rev: October 2007

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